AMENDMENTS TO THE CLAIMS

1. (Original) A throttle position sensor for a throttle having a movable throttle element comprising:

an elongated electrically resistive strip having a first end and a second end, said first end being electrically connected to a first voltage potential and said second end being electrically connected to a second voltage potential, said first voltage potential being different than said second voltage potential,

an electrically conductive wiper in sliding contact with said resistive strip, one of said wiper or said resistive strip being coupled to the movable throttle element so that the position of said wiper relative to said strip varies proportionately with the position of the throttle element and so that a voltage at an output from said wiper varies proportionately with the position of the movable throttle element, and

a circuit which determines a contact resistance between said wiper and said strip.

2. (Original) The invention as defined in claim 1 wherein said circuit comprises:

a sensor resistor of predetermined resistance,

a switch which selectively electrically connects said sensor resistor between said wiper and said second voltage potential,

a first voltage detector which generates an output signal representative of the voltage drop across said sensor resistor,

a second voltage detector which generates an output signal representative of the voltage drop between said first end of said strip and said wiper, and

a processing circuit electrically connected to the output signals from said first and second voltage detectors and said first voltage potential which calculates the contact resistance as a function of said first and second voltage detector output signals and said first voltage potential.

3. (Original) The invention as defined in claim 2 wherein said second voltage detector comprises a buffer having high impedance input selectively electrically connected in series with said second end of said strip, said second voltage detector having an output signal proportional to the voltage on said strip at the point of contact with said wiper.

4. (Original) The invention as defined in claim 2 wherein said first voltage detector comprises a buffer having high impedance input selectively electrically connected in parallel with said sensor resistor, said buffer having an output signal representative of the voltage drop across said sensor resistor.

5. (Original) The invention as defined in claim 3 and comprising a second switch for selectively electrically connecting said buffer input in series with said second end of said strip, said second switch having one pole connected to said second end of said strip and a second pole connected to said second voltage potential.

6. (Original) The invention as defined in claim 5 wherein said first mentioned switch comprises an electronic switch.

7. (Original) The invention as defined in claim 6 wherein said electronic switch comprises a FET.

8. (Original) The invention as defined in claim 5 wherein said second switch comprises an electronic switch.

9. (Original) The invention as defined in claim 8 wherein said electronic switch comprises a FET.

10. (Original) The invention as defined in claim 1 and comprising a buffer having high impedance input selectively electrically connected in parallel with said first end of said strip, said buffer generating an output signal representative of said first voltage potential.

11. (Original) The invention as defined in claim 1 wherein said circuit comprises a microprocessor.

12. (Original) The invention as defined in claim 11 wherein said microprocessor compares said calculated contact resistance and generates an error signal when said calculated contact resistance exceeds a predetermined threshold.

13. (Original) The invention as defined in claim 12 wherein, in response to said error signal and said output voltage from said wiper, said microprocessor calculates a corrected throttle position sensor output signal.

14. (Currently Amended) The invention as defined in claim [[1]] 12 wherein said throttle position sensor includes a redundant resistive strip and a redundant wiper and wherein, in response to said error signal, said circuit switches said outputs from said throttle position sensor to said redundant resistive strip and said redundant wiper.

15. (Original) The invention as defined in claim 1 and comprising a second circuit which selectively measures the resistance between said first end of the strip and said wiper and said second end of said strip and said wiper.

16. (Original) The invention as defined in claim 15 wherein said second circuit comprises a first switch which selectively connects said first end of said strip to said first voltage potential, a second switch which selectively electrically connects said second end of said strip to said first voltage potential, said second voltage and an open circuit.

17. (Original) The invention as defined in claim 1 wherein said circuit comprises:

a first sensor resistor connected in series with said first end of said resistive strip,

a second sensor resistor connected in series with the second end of said resistive strip,

a third sensor resistor connected to said wiper,

an alternating current source connected to said first end of said resistive strip,

circuitry which detects a voltage differential across said first, second and third sensor resistors attributable to said alternating current source and generates output signals representative of said voltage differentials, and

a processor which determines said contact resistance as a function of said output signals.

18. (Original) The invention as defined in claim 17 and comprising a DC blocking capacitor connected in series with said third sensor resistor.

19. (Original) The invention as defined in claim 17 wherein said circuitry comprises a signal processor associated with each of said sensor resistors for isolating the voltage differential across each sensor transistor attributable to said alternating current source.

20. (Original) The invention as defined in claim 19 wherein each signal processor comprises a band pass filter having a predetermined band pass frequency range, said alternating frequency signal source having a frequency within said band pass frequency range.

21. (Original) The invention as defined in claim 20 wherein each said signal processor comprises a rectifier connected in series with an output from said band pass filter.

22. (Original) The invention as defined in claim 21 and comprising an amplifier connected in series with each said rectifier.

23. (Original) A method for use with a throttle position sensor having an elongated resistive strip with a first and second end, a wiper in sliding contact with said strip, said wiper exhibiting a contact resistance with the strip, for determining the contact resistance comprising the steps of:

applying a voltage to the first end of the strip,

detecting the voltage at said first end of said strip,

connecting a resistor of predetermined resistance to said wiper,

detecting the voltage drop across the resistor, and

detecting the voltage at the contact between the wiper and the strip.

24. (Original) The invention as defined in claim 23 wherein said step of detecting the voltage at the contact between the wiper and the strip comprises the step of minimizing current flow along the strip between the wiper and the second end of the strip, and detecting the voltage at the second end of the strip.

25. (Original) The invention as defined in claim 24 wherein said minimizing step comprises the step of electrically connecting a high impedance electrical device in series with the second end of the strip.

26. (Original) The invention as defined in claim 25 and further comprising the step of compensating for a contact resistance outside a preset range.

27. (Original) A method for monitoring the operational status of a throttle position sensor having an elongated resistive strip having two ends and a wiper in sliding contact with the strip and exhibiting a contact resistance, a voltage potential applied between the ends of the strip so that the voltage at the wiper corresponds to the position of the wiper along the strip, said monitoring method comprising the steps of:

iteratively determining the resistance between the wiper and each end of the strip,

comparing said iteratively determined resistance values with previously stored resistance value, and

generating a warning signal when said comparing step identifies a resistance difference greater than a predetermined threshold.

28. (Original) A throttle position sensor for a throttle having a movable throttle element comprising:

an elongated electrically resistive strip having a first end and a second end, said first end being electrically connected to a first voltage potential and said second end being electrically connected to a second voltage potential, said first voltage potential being different than said second voltage potential,

an electrically conductive wiper in sliding contact with said resistive strip, one of said wiper relative or said resistive strip being coupled to the movable throttle element so that the position of said wiper relative to said strip varies proportionately with the position of the throttle element and so that a voltage at an output from said wiper varies proportionately with the position of the movable throttle element, and

a circuit which determines a resistance of said resistive strip between said first end and said second end.

29. (Original) The invention as defined in claim 28 wherein said circuit comprises:

a sensor resistor of predetermined resistance,

a first switch which selectively electrically connects said sensor resistor between said wiper and said second voltage potential,

a first voltage detector which generates an output signal representative of the voltage drop across said sensor resistor,

a second switch connected to said second end of said resistive strip, said second switch selectively connecting said second end of said resistive strip to said first voltage potential, said second voltage potential and an open circuit,

a second voltage detector which generates an output signal representative of the voltage at said second end of said resistive strip,

a third switch connected to said first end of said resistive strip, said third switch selectively connecting said first end of said resistive strip to said first voltage potential and an open circuit,

a third voltage detector which generates an output signal representative of the voltage at said first end of said resistive strip, and

a processing circuit electrically connected to said output signals from said first, second and third voltage detectors, said processing circuit being programmed to calculate the resistance of said resistive strip between said first and second ends as a function of said output signals from said first, second and third voltage detectors and the state of said first, second and third switches.